DOCUMENT RESUME

ED 309 164 SP 031 318

AUTHOR Munby, Hugh; Russell, Tom
TITLE Metaphor in the Study of Teachers' Professional Knowledge.
PUB DATE Mar 89
NOTE 10p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, CA, March 27-31, 1989). For related documents, see SP 031 317-319.
PUB TYPE Speeches/Conference Papers (150) -- Viewpoints (120)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Cognitive Processes; *Concept Formation; *Heuristics; Intermediate Grades; Junior High Schools; *Language Usage; *Metaphors; Teacher Behavior; Teacher Effectiveness

ABSTRACT

This paper suggests that it may be productive for all teachers to become students of metaphor, as least of their own metaphors. Careful attention of how one describes the world appears to give clues as to how one constructs it. Such constructions can come under scrutiny only when one speaks or writes, and then attends to the language one has used. A brief description is presented of a research program into the character and development of professional knowledge. It is demonstrated how looking for one's own metaphors can be expected to reveal something of one's professional knowledge. This is a necessary part of productive reflection upon teaching practice. In considering "reflection-in-action" it is pointed out that this is occasioned by the puzzles of practice, and an important part of the process is known as "reframing." Reframing describes the familiar part of the process in which an event over which someone has puzzled for some time suddenly is "seen" differently and in a way that suggests new approaches to the puzzle. An analysis is presented of interviews with two teachers in which their use of metaphors provided clues as to how they think about teaching. (JD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

METAPHOR IN THE STUDY OF TEACHERS' PROFESSIONAL KNOWLEDGE[1]

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

H. Munby
T. Russell

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Hugh Munby and Tom Russell
Faculty of Education, Queen's University
Kingston, Ontario K7L 3N6

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

ED309164

Introduction[2]

The preface to *Philosophical Perspective on Metaphor* contains the observation: "judging from the jump in interest in metaphor between 1940 and the present, if we extrapolate to the year 2039, there will then be more students of metaphor than there are people" (Johnson, 1981, p. ix). Although we think this exaggerates the situation, our own work with metaphors suggests that it may be productive for all teachers to become students of metaphor, at least of their own metaphors, and this is the principal message of the present paper. We begin by setting the context with a brief description of our research program into the character and development of professional knowledge. Next, we show how we have used the concept "metaphor" in our work. At this point, we turn to data from our case studies, and draw attention to the metaphors used by some of the participating teachers. Finally, we show how looking for one's own metaphors can be expected to reveal something of one's professional knowledge. This, we argue, is a necessary part of productive reflection upon teaching practice.

Research on Professional Knowledge

The aspect of teachers' professional knowledge of interest to us is not the propositional knowledge typically conveyed in teacher education courses and texts, but the non-propositional "knowing-in-action" that resides in performing the activities of teaching. This aspect of professional knowledge has been the focus of the work of Schön (1983, 1987), who offers a framework for understanding how professionals in such diverse areas as music, architecture, and teaching acquire and develop knowledge of how to act. Our 1986-1988 research builds on Schön's view that knowing-in-action is acquired through an interaction with experience that is non-logical and often sudden and unexpected. Schön calls this "reflection-in-action." The process is quite different from other types of reflection in which deliberate thought is applied (Munby & Russell, 1989). Reflection-in-action is occasioned by the puzzles of practice, and an important part of the process is what Schön calls "reframing." Reframing describes the familiar process in which an event over which we have puzzled for some time suddenly is "seen" differently, and in a way that suggests new approaches to the puzzle. The significance of reframing is that it sets the puzzle differently, and it frequently does so in a fashion that is not logical and is almost beyond our conscious control. Schön (1983, pp. 184-187) offers the example of developing a synthetic paint brush. Initially, the puzzle was framed by thinking of a brush as something that applies liquid to a surface. Then, suddenly, someone began to think of a brush as a pump, and this reframing led to novel and productive thinking.

---

[1] Presented at the annual meeting of the American Educational Research Association, San Francisco, March, 1989.

[2] The work described here is from the research project "Metaphor, Reflection, and Teachers' Professional Knowledge," directed by Hugh Munby and Tom Russell, and funded by the Social Sciences and Humanities Research Council of Canada. Additional support has been provided by the School of Graduate Studies and Research at Queen's University. Sandra Cantelon and Yang Chang assisted in analyzing the data used in this paper, and provided valuable comments on earlier drafts.

BEST COPY AVAILABLE

5/1021518

Our research with beginning and experienced teachers has provided us with many instances in which the puzzles of professional practice are reframed. For example, one teacher who is relatively new to teaching primary children experiences problems with implementing classroom routines. Initially, she frames this as a management problem in which one could expect explicit directions to be followed, but this does not yield the desired results. Suddenly, the problem is transformed from a management one to a learning one, and she is quickly able to bring her knowledge of how primary children acquire skills to the newly framed problem. In the original frame, there would be no reason to think that her knowledge of primary learning would contribute usefully to the problem, because the problem was not seen as a learning one. Here, reframing reveals a quite different way of constructing the problem, and the solution swiftly follows. Of course, reframing assumes that there is an initial frame, a given way in which the puzzle has been constructed. This is where we have found the concept of metaphor to be powerful.

Metaphor as "Seeing As"

One of the problems we have had with "metaphor" is defining the term. Rather than attempt the insoluble, we find it helpful to return with Schön (1979) to the Greek *metapherein*, to carry across. The essence of metaphor, then, seems to be the way in which casting particular experiences brings a richness of vocabulary to describing the experience. This feature of metaphor builds upon the relationship between language and thought and is the starting point for *Metaphors We Live By*, in which Lakoff & Johnson (1980) state that "the essence of metaphor is understanding and experiencing one kind of thing in terms of another" (p. 5). The book offers many examples showing how metaphoric language is used in our language about everyday affairs: war-like words are used when we refer to arguments--"his criticisms were *right on target*" (p. 4); we speak of communication as if it were a pipeline or conduit--"Your reasons *came through* to us" (p.11); and orientational metaphors characterize our descriptions of feelings, health, control, and so on--"My spirits *rose*," "He's in *top* shape," and "He is *low man* on the totem pole" (p. 15). For Lakoff and Johnson, metaphors are much more than embellishments to be found in poetry and rhetoric. Rather, they argue, the human conceptual system is defined and structured metaphorically, and human thought processes are largely metaphorical. In short, we construct our world or "see" it metaphorically.

We became "caught up" with metaphors when we realized that earlier work (Munby, 1982, 1984) improperly emphasized the propositional character of professional knowledge. We believed that much professional knowledge was "carried" or "held" in other ways, and that one of these concerned the way in which a practitioner constructed the events of his or her professional world. Our reading of the contemporary work on metaphor, mentioned above, showed us that realities are constructed metaphorically. It dawned on us that we could turn this around and explore practitioners' metaphors to gain insights into how they constructed their professional worlds.

Our analyses of interviews with teachers revealed a feast of metaphors (Munby, 1986, 1987): Lessons are described as moving objects--"I keep it rolling all the time, I can't slow up"; minds are containers--"that was uppermost in their mind"; information is an object or commodity--"I didn't catch what he said," "I give them my opinion"; behavior and management have distinct orientational qualities--"he doesn't flare up very often," "I was right on top of them;" and much more.

We have used metaphor as a heuristic in our current research on the development of teachers' professional knowledge. Earlier in this paper, we described the process of reframing as pivotal to acquiring knowledge of practice because it entails novel ways of "seeing" professional

puzzles, just as metaphors provide us with novel ways of "seeing." Accordingly, when we have analyzed interviews with our participating teachers for instances of the use of new metaphors, we have been careful to note changes in the language our participants use as they describe professional puzzles and their resolution.

We have chosen two cases, Linda and Jack, from among the 13 participants in our recent study to illustrate different approaches that we have taken in our work. In the first, we are able to identify a particular metaphor, "sharing," and to show how its use changes for the teacher as she suddenly becomes aware of a puzzle in her practice. In the second case, although the metaphor comes from Jack, it is the research team that is engaged in reframing, because we come quite suddenly to see how his metaphor, "scientific processes," offers a way to understand how Jack thinks about his own teaching.

Linda

Linda, who is 43 years old, returned to her teaching career 5 years ago after an absence of 15 years during which she taught infrequently and informally. (She believes that this absence has helped her to reflect on her teaching.) Presently, Linda is enrolled as a part-time student in a Master of Education program. During her participation in our research, Linda was teaching environmental studies integrated with language arts to a class of 28 Grade 6 youngsters.

The metaphorical language Linda uses to describe her teaching is rich and exciting, and gives many clues to how she constructs her professional world. For Linda, students learn by deriving meaning by making connections to their own experiences, a process in which she expects students to "pull it all together" very much in their own terms. It is important for her to have them "feel" their own way, and to "cover" the curriculum in their own time. Consequently, she says, she does not have a "rigid framework" for her lessons; indeed she claims that she does little detailed planning. Instead, the focus is on process and on her efforts to take the direction the students offer and to move with that. In some places, she characterizes the process of discussion as a "struggle" for them. Linda's language makes it clear that this struggle is the source of learning, but it poses a problem for her that is familiar to many: she remains unsure of when it is appropriate for her to intervene. As she puts it, "Do you jump in to help them out or sit back and watch them struggle? You have to make yourself stand back." Sometimes, Linda suggests she is sure that the "direction" should come from the students, because she wants them to have responsibility and choice. At other times, she seems less sure, and wonders whether she should "push" them.

There are many productive parts of Linda's data that could be reported. Here, we choose to focus on one feature: the frequent use of "share." Some examples are:

> It's extremely important that people *share*
>
> Very much at the heart of my teaching [are] my thoughts and feelings I have to *share* with them
>
> They have to know it's O.K. for them to *share* their thoughts and feelings with me
>
> It might indeed end up with a *sharing* process
>
> This morning there was a bit more *sharing*

Interestingly, this use of "share" parallels its use in places where the word is not used metaphorically, as in sharing a classroom and sharing time. For us, the use of "share" for thoughts and feelings is metaphorical because these cannot be shared in the way that food, tools, and space can be. Thoughts and feelings can be described, but they cannot be shared literally. ("Share" implies an equality, too.) Linda also uses the "share" metaphor when she is talking with the project interviewer: "it would be interesting to put those thoughts together with what I share with you."

The use of "share," the emphasis on choice and responsibility, and Linda's determination that the children should be in control portray her as a sensitive, open, and thoughtful teacher. Indeed, her openness led to her participation in the project, and to her asking the interviewer to observe the classroom in order to see if she was as "child-centered" as she thought she was. This task proved to be a challenge for the interviewer because Linda seems not to be so open to some procedures, policies, and teaching approaches, rejecting them with a characteristic "I couldn't live with":

> The prescriptive curriculum . . . I can't live with that
>
> When someone says "Describe your curriculum" I can't live with that because I couldn't describe it
>
> I don't live with prescriptive curriculums
>
> So that "child-oriented" to me is as much allowing them to make the decision and the choice, and that's the part I can't live with sometimes
>
> I can't live with the word "coaching"

The picture here is clearly a complicated one: Linda's language portrays her as child-centered and open, and she invites the interviewer to observe the classroom critically; but Linda's language, just above, suggests some definite dismissals. Further complication comes from the interviewer's observations, as she began to see that Linda was not giving the choices to the students in the way that Linda had said she was. In an interview conducted approximately half-way through her involvement with the project, Linda appears to understand this quite suddenly after reading a transcript of the previous interview:

> I had been blind, there was one essential element missing: the thoughts and understandings of the kids . . . but I can't get over why I didn't see it before now! That really threw me!

This realization marked a transition for Linda in many ways. For one, there is evidence that she regards the interviewer differently, as if she has discovered that the interviewer has something worthwhile to offer professionally. More importantly, we have observed a shift in the emphasis and in the language she uses in later interviews. First, there is more attention in the next set of interviews to individual children. Second, there is much less use of the metaphor "sharing." Now when she describes her verbal interactions with students and with the interviewer she tends to use the simple, literal word "talk": for example, "for some students, it'll just clearly be through talking." "we had talked about writing a story," "we talked about creating impressions." It is as if her previous use of "share" masked the unique significance of the interactions with individuals.

It is tempting to say that Linda's realization in that pivotal interview made the sort of difference to the way she constructed her professional world that led to a difference in language.

Unfortunately, we have insufficient data to support this conclusion; instead, we suggest that it is tantalizing to see such a change when one is sensitive to the language.

Jack

Jack has seven years of teaching experience, but in contexts quite different from the one in which we worked with him. Jack has a bachelors degree in Physical Education and History, and a year of teacher training. He taught grades 5 and 6 overseas for two years, returned to Canada and supply taught for a year before being assigned to teach a Behavioral Adjustment class (of young adolescents with behavioral problems) for three years. He began to participate in our project near the beginning of his first semester in a different school, teaching Grade 7 Language Arts and Math, Grade 7 and 8 Science, and Physical Education; all but the last were new teaching experiences for him. Jack's initial interviews reveal his concerns for what he takes to be his limited knowledge of the content of science, and he maintains this concern for the first year in our project.

Jack's view of science ["science is discovering and investigating, . . . asking why"] is important to understanding the perspective we take on his case here. His view appears consistent with his approach to teaching science, which he describes as a "hands-on" approach in which the students try to "find" answers by designing and conducting their own experiments. Also, Jack attempts to "relate" science to his students' lives; different types of friction, for example, are described with reference to pushing a wheelbarrow of firewood. As we have studied Jack's case, we have found it productive to focus upon his stated approach to teaching science, especially upon his view of the scientific method. "Scientific processes" appears to be the key to his construction of his science teaching, and we attend to this metaphor. In Jack's language, we see many examples of what "scientific processes" are and what teaching them is meant to do. The following give some sense of his views:

> Cover the scientific processes
>
> Getting them to think
>
> Find a way to prove something that's already been proved
>
> Test it, this is what will happen
>
> It's just a guess. Do this and see what will happen
>
> Prove something else
>
> Use the scientific process.
>
> A lot of times you don't really have the answer so you come up with a hypothesis [and] try it. If it works, fine; if it doesn't, you try something else.

The following quotation comes from Jack's description of a unit on the nature of science, and provides a good summary of his "scientific processes" metaphor:

> It's looking at the cycle of discovery. You pose a problem; you have to try to hypothesize or guess how you're going to solve this problem, and you look at all the variables . . . and then you go about doing your experimenting. That's the way they had to do [it].

We have noticed three interesting features of the way in which Jack uses the "scientific processes" metaphor to talk about his teaching. First, when Jack describes components of his "scientific processes" in our interviews, he never mentions anything about how one can *arrive* at hypotheses for testing. Students are expected to hypothesize or guess, but there is no suggestion that these activities come from *thinking about theory*, which many regard as an essential feature of science. Second, the language of this metaphor conveys the idea that hypotheses can be proved, that there is a "right answer" or a "solution" to problems in science. The emphasis on proof is incompatible with the discipline of science. The third feature that we have found interesting is Jack's extension of "scientific processes" to the solution of problems in areas outside science. This we understand to be consistent with his intent to "relate" science to the everyday activities of his students, as noted above. So, it is not surprising that he encourages his students to use the problem solving approach embedded in his "scientific processes" for resolving personal conflicts and problems.

For a long time, we found it difficult to get a clear and coherent picture from Jack's data of how he thinks about his own teaching. Quite suddenly, it came to us that his "scientific processes" metaphor might provide us with a fresh way of looking at the data. Previously, we had seen the metaphor as a way of understanding Jack's approach to science teaching; we simply did not "see" its potential for framing his professional thinking. Here, then, the "scientific processes" metaphor provides the research team with a heuristic for explaining the following sorts of language in Jack's interviews. The interviews conducted with Jack during the first year contain fragments such as:

> I'm experimenting, trying different things to see if "Yeah this really worked well."
>
> I would go home and I would try to figure out (what happened).
>
> It surprised me. I didn't think that they would want to do it that way.
>
> Spending a lot of time trying to figure out how to get the kids to do what I want them to do.
>
> It's a chance you take, it's a strategy . . . I thought I'd give it a try and see what happened.

Here we get a sense of an underlying approach similar to Jack's "scientific processes," because the emphasis is upon testing out teaching approaches without anything being said of the origin of the approaches or of the thinking that gives rise to them. This characteristic is evident in the interviews of the second year, too: "Last year was 'I don't know why I did it!' Basically, I did it because I thought it was worth giving it a shot." But there are two interesting differences in the second year's data. First, Jack begins to explain how he thinks about his teaching. The following examples show him offering an approach to problem solving that seems to be in distinct contrast to the "scientific processes" that guide his curriculum.

> But I didn't have it all written out step-by-step what I was going to do. Now, part of me says that's the sign of a poor teacher because you haven't thought out the whole process. But I know what I'm doing. Just knowing that . . . like I keep saying "right hemisphere!" We don't plan things out like other people do! [A colleague's] got it all organized, but she knows what I'm doing, and she just says that I'm more, I guess, the teacher. There's a science of teaching and the art of teaching, and I don't necessarily have the science of teaching because I don't organize myself like she does. I just know what I'm going to do, and I know it's going to work. . . . I probably don't

> spend as much time on the actual recipes, the planning of the lesson, as I do on being concerned [about] the influence I'm going to have on the students.

Jack's distinction between the art and science of teaching signals the second interesting feature of his second-year interviews. The distinction suggests that he views thinking about one's teaching to be different from thinking of the sort that is captured by his phrase "scientific processes," yet he approaches his lesson planning very much as he does the puzzles that confront him when he is actually teaching. We see the same pattern of trying things out that we saw in his description of the "scientific processes":

> In teaching, I don't want to have to really think it out before I actually do something. Sometimes it just comes naturally to me, I guess, to do it, and then I reflect back on why I did it, which I guess would then maybe affect how I'm going to do it the next time, just through common sense, if I'm seeing it didn't work.

Jack talks in several interviews about the value of reflecting back on the day's events, but his reflection is not *in* the action. This reflection-on-action is evidently a powerful way for him to learn, just as he believes it to be the way in which we learn by "scientific processes." And, interestingly, there is evidence that his experimenting with teaching approaches comes out of his reflecting back, a feature that was absent in his account of "scientific processes" so far as his course is concerned: "By talking and expressing your views about something you can bring it to the surface and have a better understanding of what it is you're doing."

In Jack's case, we have been struck by how a metaphor that characterizes a teacher's approach to his subject matter seems to parallel his approach to thinking about his teaching strategies. The metaphor clearly has power for us as we see Jack come to terms with his professional mode of thinking. Some mysteries remain, of course. We do not understand why Jack distinguishes between the art and science of teaching as he does, when he evidently is beginning to use the "scientific processes" and his own reflection productively. Neither do we know if Jack expects this approach to thinking to give him "right answers" for his teaching, as he expects the approach to do for problems in science. Possibly, Jack's continued reflections on his teaching may lead him to resolve this puzzle too.

Using Metaphors in Professional Practice

Metaphorical language abounds in talk about practical matters. Coaches, for example, frequently draw upon metaphors to convey to athletes what particular moves in gymnastics, diving, and fencing are meant to feel like. Our involvement with metaphor has made us very sensitive to how we speak. Both of us have had administrative responsibilities for programs at Queen's University and have found relief in metaphors such as "curb-service" (for some of the things students called upon us to do; Lee Iacocca uses this term in his book, *Iacocca*) and the "revolving door" (for frequency of student visits at the office). At a more serious level, our work with metaphors has made us attend carefully to how we use language descriptively. Thus we have become aware of the importance of referring to the teachers we have studied as participants, rather than as subjects. The meanings attached to "subject" extend deeply into power and coercion, and fail to give an accurate picture of how the teachers have welcomed us, talked with us, and responded to our case-writings of them. We have also found it helpful to examine the language we use when we talk together about our own teaching and supervising. As a heuristic, metaphor influences our research and teaching. So the concept metaphor has fulfilled the expectations implied for it by the writing of Schön (1979) and Lakoff and Johnson (1982), and we suggest that the power of metaphor might be invoked profitably by teachers and administrators as a way of reflecting on and possibly improving their own practice.

As we have seen in Linda's case, a careful examination of the data suggests that the explicit descriptions of her teaching approach do not go together with her interviewer's observations of her teaching, nor with the meanings that seem to be presented by her metaphors. In her final interview, Linda reflects on how she thought she was being attentive to giving youngsters responsibility: "But I don't think I . . . was focusing in on it nearly as much as I am right now." Jack comes to see something of his own teaching through the interviews we held with him, too. In the second interview of his first year of involvement with the project, he was asked if the work had been useful to him. He replied:

> It's been useful because it makes me sit down and, I guess, verbalize what I'm thinking. I'm always wondering, "What should I do here?" And then we sit down and actually *talk* about it, and things come out that wouldn't normally come out when you're sort of thinking to yourself. It's like brainstorming an idea, when you say, "What could I have done to improve upon that lesson?" I hadn't really thought about it until you asked that question.

For us, this represents Jack's discovery of the power of having to verbalize one's thinking, to put it into words so that one can "look" at it. Our research team experienced the same sort of feeling when Jack's metaphor, "scientific processes," unexpectedly presented us with a key to portraying his professional thinking, obliging us to look at the data differently.

Our work with the participants in this study reminds us of the force of language. This is what we meant by suggesting at the beginning of this paper that all professionals might well become students of metaphor. Careful attention to how one describes the world appears to give clues to how one constructs it. Such constructions can come under scrutiny only when we speak or write, and then attend to the language we have used. "Minding our metaphors" seems to be an appropriate recommendation.

References

Johnson, M. (Ed.). (1981). *Philosophical perspectives on metaphor.* Minneapolis: University of Minnesota Press.

Lakoff, G., & Johnson, M. (1980). *Metaphors we live by.* Chicago: University of Chicago Press.

Munby, H. (1982). The place of teachers' beliefs in research on teacher thinking and decision making, and an alternative methodology. *Instructional Science, 11*, 201-225.

Munby, H. (1984). A qualitative approach to the study of a teacher's beliefs. *Journal of Research in Science Teaching, 21*(1), 27-38.

Munby, H. (1986). Metaphor in the thinking of teachers: An exploratory study. *Journal of Curriculum Studies, 18*, 197-209.

Munby, H. (1987). Metaphor and teachers' knowledge. *Research in the Teaching of English, 21*, 377-397.

Munby, H., & Russell, T. (1989). Educating the reflective teacher: An essay review of two books by Donald Schön. *Journal of Curriculum Studies, 21*, 71-80.

Reddy, M. (1979). The conduit metaphor. In A. Ortony (Ed.), *Metaphor and thought* (pp. 284-324). Cambridge: Cambridge University Press.

Russell, T., Munby, H., Spafford, C., & Johnston, P. (1988). Learning the professional knowledge of teaching: Metaphors, puzzles, and the theory-practice relationship. In P. Grimmett & G. Erickson (Eds.). *Reflection in teacher education* (pp. 67-90). Vancouver: Pacific Educational Press & New York: Teachers College Press.

Schön, D. (1979). Generative metaphor: A perspective on problem-setting in social policy. In A. Ortony (Ed.), *Metaphor and thought* (pp. 254-283). Cambridge: Cambridge University Press.

Schön, D. A. (1983). *The reflective practitioner: How professionals think in action.* New York: Basic Books.

Schön, D. A. (1987). *Educating the reflective practitioner: Toward a new design for teaching and learning in the professions.* San Francisco, CA: Jossey-Bass.